

**Abstract**

A method of liquefying a hydrocarbon-rich gas, wherein the gas flows through a cascade of three refrigeration stages, each stage comprising a refrigerant circuit and a compressor, wherein at least part of the flow of refrigerant from the second circuit is used for the pre-cooling of the hydrocarbon rich gas in the first refrigeration stage. This balances the load on each of the compressors. By standardizing the drive units and compressors of the three coolant circuits, it is possible to maximize the attainable liquefaction capacity of the liquefaction process using tried-and-trusted drive units and compressors respectively. This method can be applied to mixed refrigerant cascades and circuits with a carbon dioxide pre-cooling circuit. This latter option has benefits for offshore use where large amounts of hydrocarbons are undesirable.